

CLAIMS

What is claimed is:

1. A shellable closure for a container includes an inner cap and an outer cap designed to be nested for a child resistant mode and purposefully shellable for use in a non-child resistant mode;

the inner cap and the outer cap each have a row of angular abutments;

the inner cap is coaxially positioned and nested within the outer cap such that the row of angular abutments of the inner cap engage the row of angular abutments of the outer cap upon rotation of the outer cap in a closing direction, and upon rotation of the outer cap in an opening direction, without a concomitant axial force, the respective angular abutments cam over and past each other to prevent rotation of the inner cap;

said outer cap has at least two tabs and said inner cap has a groove and at least one channel, said tabs being spaced about the outer cap and fitted in said groove;

said tabs shaped to hold said outer cap in nesting relation to said inner cap when said tabs are fitted in said groove;

said channel being shaped to allow one of said tabs to pass through said channel whereby when one of said tabs and said channel are aligned, said outer cap can be easily removed from its nesting relationship relative to said inner cap.

2. The shellable closure of claim 1 wherein there are at least three tabs and one channel.

3. The shellable closure of claim 1 wherein said inner cap and said outer cap are round when viewed from the top of the closure, and wherein said inner cap includes words indicating that the cap is not child proof, with said words being viewable only when said outer cap is removed from said inner cap.

4. The shellable closure of claim 1 in combination with a container having a neck, the inner cap having a positive locking device for engagement with a complementary locking device on the neck of the container.

5. A closure system for a container having a neck with an engaging device, said closure system including:

- a. a cap having a top wall with an upper, outside surface and a circumferential side wall depending from said top wall, said side wall having an inside surface and an outside surface;
- b. an engaging device on the inside surface of said side wall for cooperatively engaging an engaging device on a container;
- c. a series of angular abutments on said cap designed to allow a cam follower to cam over said abutments when a cam follower is moved in one direction and to engage a cam follower moved in another direction;
- d. a groove in said outside surface of said circumferential side wall, and
- e. a channel in said outside surface of said circumferential side wall, said channel running from said groove to the upper, outside surface of the top of said cap;

whereby said cap can serve as a non-childproof closure for a container, but can be made childproof by the addition of a second cap to the closure system.

6. The closure system of Claim 5 wherein said engaging device is a helical thread.

7. The closure system of Claim 5 wherein said angular abutments are saw-tooth shaped.

8. The closure system of Claim 5 wherein said series of angular abutments are on the outer surface of the circumferential sidewall adjacent the upper, outer surface of said top wall.

9. The closure system of Claim 8 wherein said channel passes through said series of angular abutments.

10. The closure system of Claim 5 wherein said channel passes substantially axially along said outside surface of said circumferential sidewall of said cap.

11. The closure system of Claim 5 wherein said grove has a cross sectional shape with a surface substantially perpendicular to the outside surface of said circumstantial sidewall and another surface tapered from said outside surface of said circumferential sidewall.

12. The closure system of Claim 11 where said perpendicular surface is closer to said upper, outside surface of said top wall than said tapered surface.

13. The closure system of Claim 5 further including a second cap sized and shaped to fit over, and nest about, the cap of Claim 5, said second cap including:

- a. a top wall;

- b. a circumferential sidewall depending from said top wall, said circumferential sidewall having an inside surface and outside surface;
- c. a series of angular abutments on the inside surface of said circumferential sidewall, said angular abutments designed to serve as cam followers for cooperative engagement with the series of angular abutments on the cap of Claim 5;
- d. at least two tabs on the inner surface of said circumferential 1 sidewall, said tabs design shaped and positioned to engage the grove of the cap of Clam 5 when the second cap is placed in nesting relationship over the cap of Claim 5; and
- e. Said tabs each shaped to pass through said channel when one of said tabs is aligned with said channel.

14. The closure system of the Claim 13 wherein, when said second cap nested over the cap of Claim 5, said second cap can move axially relative to the cap of Claim 5 a distance sufficient to allow the angular abutments of said second cap to cam over the abutments of the cap of Claim 5 when said second cap is moved in an opening direction but will engage the angular abutments of the cap of Claim 5 to cause movement of the cap of Claim 5 when said second cap is moved in a closing direction.

15. The closure system of Claim 14 wherein the angular abutments of the two caps engage and cause the cap of Claim 5 to move in an opening direction when said

second cap is moved in an opening direction if axially force is applied to said second cap pushing it in the direction of cap of Claim 5.

16. The closure system of Claim 13 including three tabs on the inner surface of said circumferential sidewall.

17. The closure system of Claim 13 wherein said tabs are tapered and have a cross sectional shape generally shaped to mate with the cross sectional shape of said groove.

18. The closure system of Claim 5 wherein said circumferential sidewall includes a first end attached to said top wall and a second, free end terminating the circumferential sidewall, and at least one notch in said second end.

19. The closure system of Claim 18 further including a container having a neck with a flange extending circumferentially about the neck of said container, said flange including at least one laterally displaceable tab that snaps into said notch when said cap is moved in a closing direction over said container.

20. The closure system of Claim 19 wherein there are two tabs and two notches spaced diametrically opposed from each other on said second end and said flange, respectfully.

21. The closure system of Claim 19 wherein said tab and notch each have a ramping surface and an abutment surface so that when said cap is rotated in a closing direction, the abutment surfaces will engage and limit the movement of the cap in the closing direction.

22. The closure system of Claim 21 wherein said ramping surfaces allow said cap to move in an opening direction relative to said container when the ramping surface of said notch ramps over the ramping surface of said tab.

23. The closure system of Claim 22 wherein said flange includes a cantilevered section with the tab on the end of the cantilevered section so that the tab can move laterally in response to pressure.

24. In combination, a container and closure for said container, the closure including a cap having a top wall and a circumferentially sidewall depending from said top wall, said circumferential sidewall have a proximal end attached to said top wall and a distal free end, said distal free end having at least one notch therein,

 said containing including a neck with a helical thread thereabout and a flange spaced from said said thread, said flange including at least one laterally displaceable tab shaped to mate with said notch so that when said closure is threaded onto said container, said tab will snap into said notch and prevent any further rotational movement in a closing direction of said cap relative to said container;

 said laterally displaceable tab and said notch each having one abutment surface and one ramping surface whereby said ramping surface allows said closure to be rotated in an opening direction with said ramping surface of said notch ramping over the ramping surface of said laterally displaceable tab.

25. A cap for use in conjunction with a closure system for a container and designed to make the closure system child proof, said cap including:

- a. a top wall;
- b. a circumferential sidewall depending from said top wall, said circumferential sidewall having an inside surface and outside surface;
- c. a series of angular abutments on the inside surface of said circumferential sidewall, said angular abutments designed to serve as cam followers for cooperative engagement with a series of angular abutments a closure cap;
- d. at least two tabs on the inner surface of said circumferential sidewall, said tabs designed, shaped and positioned to engage a grove in a closure cap when said cap is placed in nesting relationship over the outside of a closure cap; and
- e. said tabs shaped to pass through a channel in a closure cap when one of said tabs is aligned with such a channel.